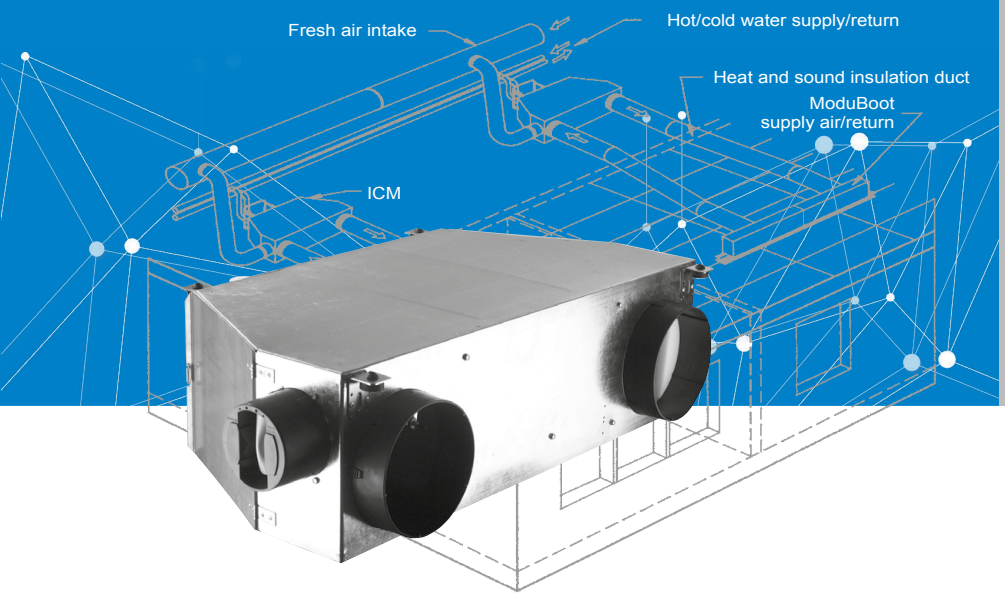
PRODUCT SELECTION DATA

LOW-CONSUMPTION INDIVIDUAL COMFORT MODULE FOR VARIABLE AIR VOLUME SYSTEMS



All-in-one offer: minimal installation costs thanks to factory-tested and -fitted options

Easy integration into a centralised zone

Very low sound level

Available static pressure: 100 to 350 Pa

42BJ ICM LEC

Total cooling capacity 0.5 – 6.0 kW
Total heating capacity 0.5 - 12.2 kW

The Carrier 42BJ ICM (Individual Comfort Module) is a compact air conditioning system available in 3 sizes, designed for conditioning rooms measuring 25 to 50 m^2.

Translation of the original document 24290-20, 03.2018

OVERVIEW AND ADVANTAGES

The 42BJ module is connected by flexible sound-absorbing ducts (heat insulated air discharge duct) to one or more plenums incorporating a linear diffuser which is seamlessly integrated into the suspended ceiling of the room to be air-conditioned (CARRIER ModuBoots 35BD/35SR range).

The units can be fitted in suspended ceilings or raised floors, ideally in corridors, where they are connected to hot water, chilled water and fresh air circuits.

These circuits installed in the building's circulation zones (for easy maintenance) never cross into air-conditioned spaces. Only the 35BD/35SR diffuser(s), inert components of the system, are located in the occupied space. This means that maintenance is performed outside of the occupied space and facilitates programming when the building is occupied.

The Individual Comfort Module has been designed to be ultra quiet; moreover, thanks to its available static pressure, it can be located away from the air-conditioned space.

■ Comfort

The 42BJ ICM LEC can be equipped with a Carrier digital control, providing each occupant with a remote user interface located on their desktop or wall, enabling individual selection of preferred comfort conditions:

- Room temperature of the room
- Forced air function (quick renewal of air in the office)
- Set to occupied or unoccupied mode by the user of each ICM LEC to meet energy-saving requirements.

The Aquasmart Evolution is used to control and optimise each module according to the requirements of the operator or local regulations. Thanks to this central energy-monitoring system, the comfort conditions can be controlled at all times to obtain the best balance between energy savings and individual comfort.

If the product is supplied without a Carrier control device, the integrator is responsible for ensuring EMC conformity.

Air quality

■ Indoor Air quality (IAQ)

Carrier is committed to developing a system for managing Indoor Air Quality (IAQ) built into air conditioning units. A major innovation which paves the way for the air conditioning systems of the future.

In this application, each individual comfort module (ICM LEC) is equipped with a fresh air intake control and high-efficiency filtration to successfully protect against any type of pollutant.

This therefore guarantees excellent indoor air quality as explained below in 2 steps:

- High-efficiency filtration: type F5 or F6
- Fresh air flow modulation: CARRIER units may be equipped with a fresh air flow modulation system to control the air flow diffused in a room.

■ Three objectives:

Adapt the ventilation flow rate to the actual occupancy of the rooms.

Maintain excellent indoor air quality to ensure the comfort and health of occupants, in accordance with the labour code.

Control energy costs relating to air change in rooms to avoid “over-ventilating” the building and to minimise operating costs, particularly when the building is unoccupied.

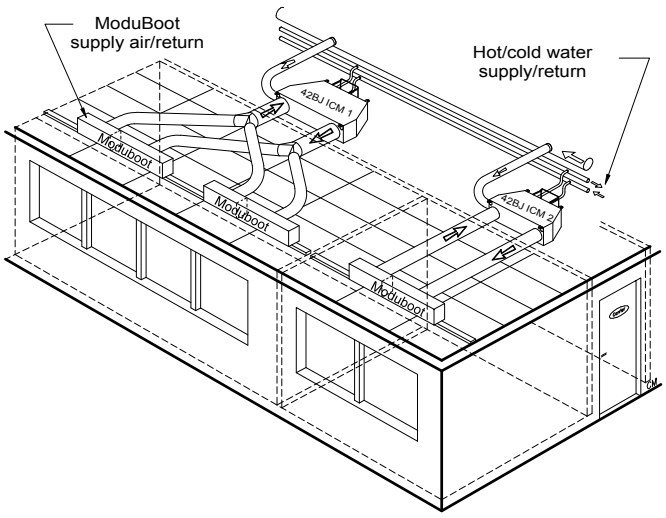
■ Operating principle

The occupants of a room release an average of 0.0045 l/s (16.2 l/h) of CO_2. A CO_2 sensor, located in the terminal's return air duct, measures the concentration of the room air conditioned by the unit. This concentration measured represents the actual occupancy of the room.

This sensor sends a signal to the Carrier digital controller which, in turn, sends a signal to actuate the fresh air valve:

If the concentration of CO_2 is below a threshold value: the fresh air flow is at minimum or zero,

if it is above: the flow rate is increased to the maximum level set.



CODES

	Range				Size		Modification index	Coils	Supply and return air plenum	Valves	Valve actuators	Control	Sensors	Filters and access	Fresh air	Motor wiring
Product ref.	**4**	**2**	**B**	**J**	**1**	**9**	**D**	**A**	**T**	**C**	**A**	**A**	**A**	**G**	**-**	**W**
Digit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Digit 5/6	
1	9
2	9
4	9

Digit 7
D

Digit 8
A = 2 RH pipes
B = 2 LH pipes
C = 4 RH pipes
D = 4 LH pipes
E = 2 pipes/2 RH wires (LP) (PTC 2 wired stages)
F = 2 pipes/2 LH wires (LP) (PTC 2 wired stages)
G = 2 pipes/2 RH wires (HP) (PTC 5 wired stages)
H = 2 pipes/2 LH wires (HP) (PTC 5 wired stages)
J = 2 pipes/2 RH wires (MP) (PTC 4 wired stages)
K = 2 pipes/2 LH wires (MP) (PTC 4 wired stages)

Digit 9
T = 1x supply air collar, 1x return air collar
Sizes 19-29: Ø200 mm
Size 49: Ø250 mm

Digit 10
- = No valves
C = 2-way valve
D = 4-way valve
J = 2-way valve + insulated flexible connections
K = 4-way valves + insulated flexible connections

Digit 11
- = None
A = 230 V ON/OFF actuator
C = 3-POINT 230 V actuator (with NTC or WTC)

Digit 12
- = None
A = NTC control
K = NTC control + fuse disconnect switch
D = NTC control + IAQ board
L = NTC control + IAQ board + fuse disconnect switch
S = WTC LON control
T = WTC BACNET control
U = WTC LON control + fuse disconnect switch
V = WTC BACNET control + fuse disconnect switch

Digit 13
- = None
A = Return sensor
B = Supply air sensor
C = Changeover sensor
D = Supply air + return sensors
F = Return + Changeover sensors
G = Supply air + Changeover sensors
E = Return + Supply air + Changeover sensors
H = CO_2 sensor
J = Return air + CO_2 sensors
K = Supply air + CO_2 sensors
L = Changeover + CO_2 sensors
M = Return + Supply air + CO_2 sensors
N = Return air + Changeover + CO_2 sensors
P = Supply air + Changeover + CO_2 sensors
Q = Return + Supply air + Changeover + CO_2 sensors

Digit 14
F = Access from under filter F5
G = Access from side STANDARD filter F5
H = Access from above filter F5
K = Access from under filter F6
L = Access from side filter F6
M = Access from above filter F6

Digit 15
- = None
A = Ø125 mm collar (without flow controller)
B = Ø125 mm fixed 30 m^3/h flow controller
C = Ø125 mm adjustable 60 -160 m^3/h flow controller
E = Ø125 mm adapter for motorised fresh air valve

TECHNICAL DESCRIPTION

■ Frame:

The 42BJ ICM LEC features a galvanised steel sheet metal box; the inside is covered with sound and heat insulation (fire protection rating M1)

■ “LEC” fan motor assembly with electronically commutated variable-speed direct-drive motor (commonly called an "EC motor"), controlled by a 0-10 V signal enabling it to operate over a broad range of rotation speeds

■ Water coil

Aluminium fins mechanically bonded by expansion onto a copper tube.

1/2” gas union nut inlet/outlet connections. Air bleed valves as standard. Coil attached to the condensate pan and coil access door forming a drawer which is easily removed for maintenance.

Coils available:

- 2 pipes with changeover or for use with an electric heater
- 4 pipes.

■ PTC electric heater

Positive Temperature Coefficient

The PTC electric heater belongs to a new generation of powerful heater rods which combine two technologies: electric heating and surface temperature limitation (cutting-edge technology based on the use of ceramics).

The actual cooling capacity depends on the air flow and its inlet temperature.

This modern technology guarantees safe, self-regulation of the cooling capacity. Moreover, each coil is equipped with a safety thermostat with automatic reset (contact opens when the temperature rises, triggered at 70 °C and average differential 20 K).

Warning: Before carrying out any work on the electric heater, the mains power supply to the unit must be disconnected.

Enhanced comfort without stratification: Supply air temperature = 35 °C

■ Thermoformed condensate pan

Main condensate pan under the coil and auxiliary pan under the valves forming a packaged assembly to prevent any risks of leaks. As the coil is placed on the fan intake to facilitate spraying, condensate is drained via a check valve, the height of the water between the main pan and the auxiliary pan is sufficient to overcome the negative pressure inside the unit. A siphon does not need to be fitted with this device.

Insulated auxiliary pan.

Drain ext. dia. 16 mm.

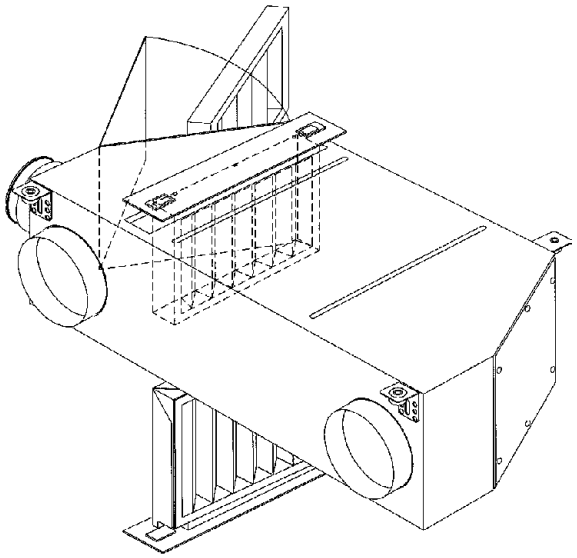
■ Filter and access

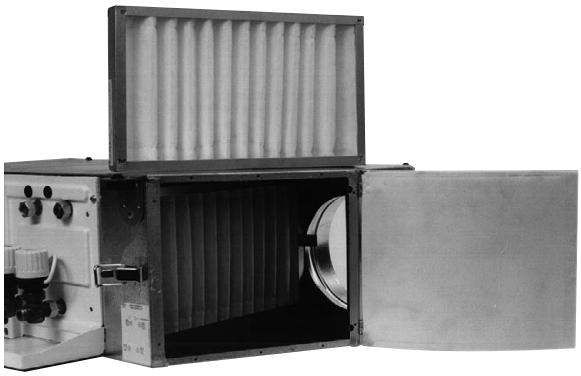
The Carrier Individual Comfort Module is equipped with a high-efficiency type F5 or F6 filter.

Fire protection rating for the medium is M1, metal frame.

The filter can be accessed via one of 3 sides of the 42BJ ICM LEC:

- Access from above: for use in a raised floor
- Access from below: for use in a suspended ceiling
- Side access: all uses





TECHNICAL DESCRIPTION

■ Constant fresh air flow controller (optional)

The Individual Comfort Module can be equipped with a constant fresh air flow controller, for controlling the air intake and air change. Depending on the room occupancy, the constant fresh air flow controller may prove essential.

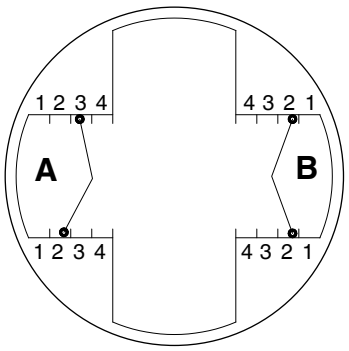
Range of fresh air flow controllers available:

8.3 l/s or 30 m³/h (-10%; + 20%)

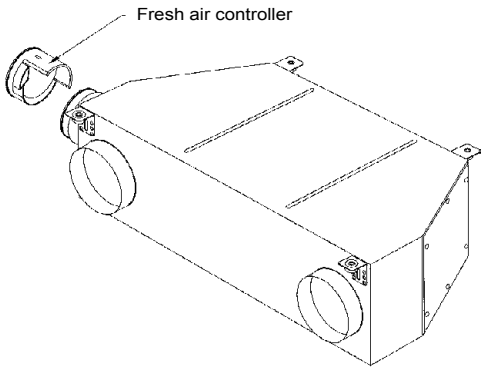
16.6 l/s or 60 m³/h (-10%; + 20%)

The fresh air feed is located before the water coils. The collar retaining the controller is made from ABS, connection diameter:

- 125 mm for 16.6 l/s (60 m³/h controller)
- 74 mm for 8.3 l/s (30 m³/h controller).



	l/s	m³/h	A	B
MR60	17	60	4-4	4-4
MR75	21	75	4-3	4-3
MR85	24	85	3-3	3-2
MR90	25	90	3-2	2-2
MR100	28	100	2-1	2-1
MR105	29	105	2-1	1-1
MR110	31	110	1-1	1-1
MR120	33	120	3-3	-
MR130	36	130	2-1	-
MR140	39	140	1-1	-
MR160	44	160	-	-



Important: if the 42BJ ICM LEC is equipped with a return air temperature sensor, the constant fresh air flow must not exceed 50% of the unit supply air flow rate at low speed.

Note: The 16.6 l/s (60 m³/h) fresh air controller can be modified on site by moving or removing two plastic restrictors to increase capacity up to a maximum constant fresh air flow of 44.4 l/s (160 m³/h).

A label affixed to the 42BJ explains how to adjust the setting of the two plastic restrictors.

Note: the 8.3 l/s (30 m³/h) constant fresh air flow controller requires a differential pressure of 50 Pa to 200 Pa to operate. The 16.6 l/s (60 m³/h) constant fresh air flow controller requires a differential pressure of 70 Pa to 200 Pa.

OPTIONS

Valves

■ Valve actuators

A range of actuators is available with two- or four-way valve bodies (three-way with integral bypass) to offer the appropriate solution for any controller type and customer requirement, from on/off to proportional types, with 230 V power supply

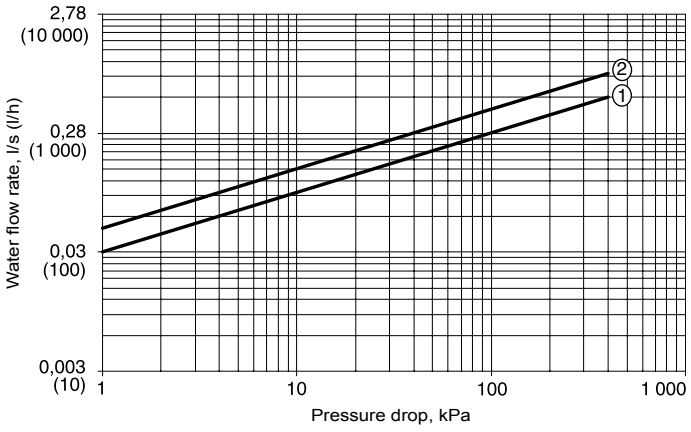
- 230 V ON/OFF actuator
- Floating 3-point 230 V actuator

When combined with LEC motors and WTC or NTC controllers, floating 3-point 230-V actuators are recommended to increase energy savings and enhance comfort.

■ 1/2" two-way valve body
- G1/2" male BSP connection for union nuts
- Straight valve body with arrow indicating direction of flow embossed on valve body.
- DN 15 for 1/2" valve
- Fluid: water and glycol solution (max. 40% glycol)
- Operating range: 2-90 °C
- Rated pressure: 1600 kPa (RP 16 bar)
- Kvs = 1.6

■ Three-way 1/2" valve body (with integral bypass)
- G1/2" male BSP connection for union nuts
- Straight valve body with arrow indicating direction of flow embossed on valve body.
- DN 15 for 1/2" valve
- Fluid: water and glycol solution (max. 40% glycol)
- Operating range: 2-90 °C
- Rated pressure: 1600 kPa (RP 16 bar)
- Kvs = 1

Valve pressure drop



1 Kvs = 1
2 Kvs = 1.6

Flexible connections

- Pipe: EPDM elastomer
- 304L stainless braid
- Connections: brass
- Insulation: cellular elastomer with M1 fire resistance rating, Ø18 mm
- thickness 9 mm, class 3 (in accordance with standard EN 12828).
- Maximum hot operating temperature 90 °C
- water mixture max. 40% ethylene glycol or propylene glycol
- Operating pressure: 1600 kPa (16 bar)
- Minimum curve radius: 106 mm
- 1/2" union nut connections
- Length: approx. 1 m

Transducers and sensors

■ Water temperature sensor

A water temperature sensor can be provided as an option for NTC and WTC controllers

- For 2-pipe coil: The sensor is installed on a hot/cold water pipe (for changeover function).
- For 4-pipe coil: The sensor is installed on a hot water pipe (for cold-draught function that prevents the operation of the unit when the hot water network is off).

■ Air temperature sensors

Two air temperature sensors, factory fitted, are available as an option for NTC and WTC controllers. They measure the air temperature at the inlet and/or at the outlet side.

■ CO_2 sensor

For indoor air quality control, a CO_2 sensor is available as an option for NTC and WTC controllers. The sensor is factory fitted at the inlet side.

OPTIONS

Accessories

There are many accessories available to facilitate installation of the 42BJ ICM LEC. Contact your local representative.

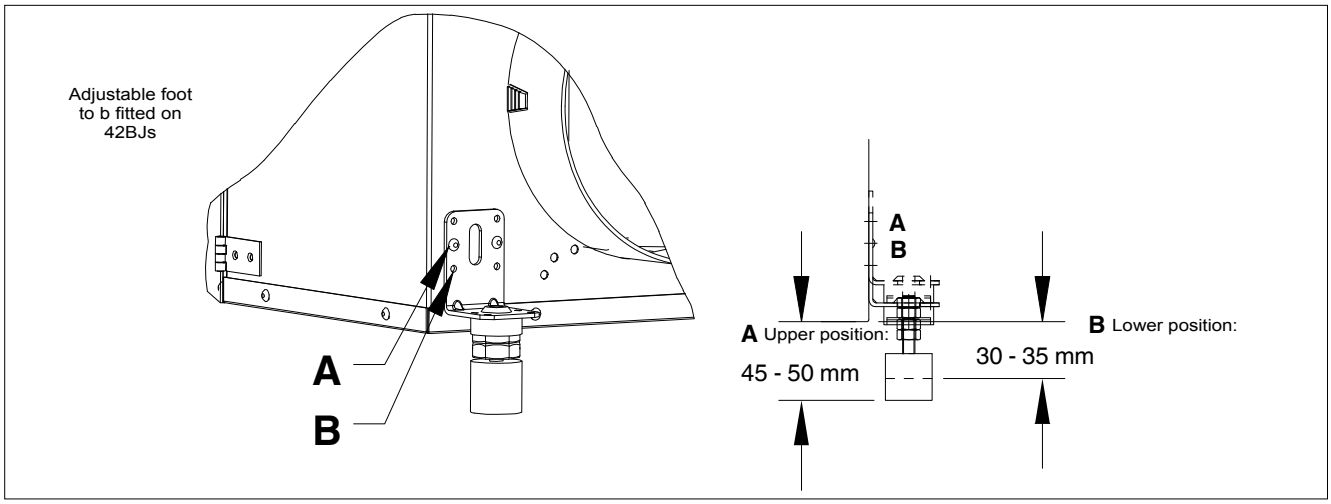
■ Condensate drain pump

A condensate drain pump can be installed on 42BJ ICM LECs either before (ideally) or after the units are installed in suspended ceilings or raised floors.

■ Adjustable feet for installation of the 42BJ ICM LEC in a raised floor: Allow for filter access from above or the side.

The 42BJ ICM LEC can be installed in a raised floor; anti-vibration adjustable feet are sold as accessories and designed to be installed on site. Contact your local representative.

Fitting procedure



CONTROL

The unit can be supplied with a wide range of Carrier controls. These controls offer functions to suit the various application requirements, summarised in the table below.

	Thermostats	NTC	WTC
Communication Protocols			
Carrier Communication Network (CCN) Aquasmart compatible		x	
BACnet MSTP			x
LON			x
Control algorithms			
On-off	x		
Proportional-integral		x	x
Carrier Energy saving algorithm		x	x
Fan control			
3 fixed speeds for AC motors	Type A&B	x	x
Automatic optimum fan speed selection	x	x	x
3 fixed speeds for EC motors	Type C&D	x	x
EC motors Variable speed		x	x
Water Valve management			
Air flow control only (no water valve)	x		
230 V On-off actuators	x	x	x
230 V Modulating actuators (floating 3pts)		x	x
Main functions			
Setpoint control	x	x	x
Occupied/unoccupied mode	x	x	x
Frost protection mode	x	x	x
Window/Door switch input	x	x	x
Measurement of water inlet temperature for automatic seasonal changeover (2 pipes)	Type A&C	x	x
Measurement of water inlet temperature to prevent cold-draught (4 pipes and 2 pipes + electric heater)	Type B&D	x	x
Manual changeover	x	x	x
Frost protection mode	x	x	x
Continuous ventilation within dead-band	x	x	x
Periodical ventilation within dead-band	x	x	x
On-site configuration	x	x	x
Unit grouping Master/Slave	x	x	x
Cassette Louvers control		x	x
Supply air temperature monitoring limiting		x	x
Electrical heater loadshed		x	x
Dirty filter alarm		x	x
Alarm reporting		x	x
Indoor Air Quality control (CO_2 sensor)		o	o
Demand-controlled ventilation (DCV) (0-10 V fresh air valve)		o	o
Free cooling mode			o
Presence detection			o
User interfaces			
Automatic or manual fan speed control	x	x	x
Setpoint adjustment	x	x	x
Occupancy (eco) button	x	x	o
Digital display		o	o
Remote control (infra-red)		o	o
CO_2 sensor		o	o
Luminosity sensor			o
Motion detection			o
Easy connection RJ45 jack (on wall mounted UI)			x
Light & Blinds management			
Light power modules			o
Blinds power modules			o
Control kit			
On site control kit solution			o

Key
X Feature available as standard
O Optional

NOTE: Please refer to the technical documentation for the aforementioned Carrier controller for details of the applicable specifications and characteristics. Upon special request other controller types can be factory-installed on the units (supplied by Carrier or the customer).

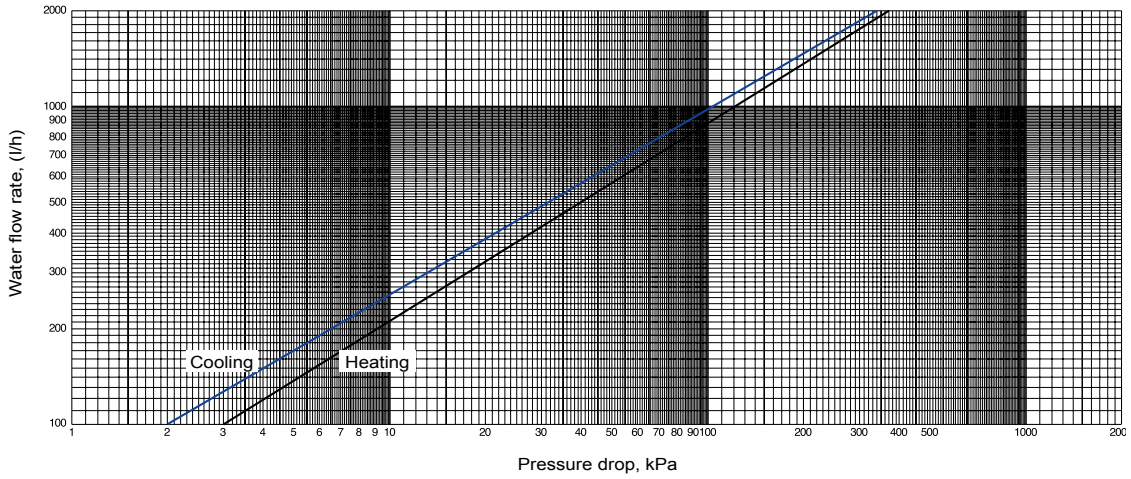
TECHNICAL AND ELECTRICAL CHARACTERISTICS

42BJ		1.9			2.9			4.9		
Ventilation speeds (1)		**L**	**M**	**H**	**L**	**M**	**H**	**L**	**M**	**H**
Voltage	V	2	5	10	2	6	10	2	8	10
Air flow	l/s	40	113	189	52	160	223	69	231	244
	m^3/h	144	405	680	187	576	804	250	831	880
Available static pressure	Pa	6	50	141	5	50	97	5	50	56
Cooling mode (2)										
Total cooling capacity	kW	1,06	2,46	3,43	1,37	3,88	5,09	2,09	5,23	5,41
Sensible cooling capacity	kW	0,77	1,88	2,7	0,96	2,84	3,77	1,45	3,81	3,95
Water flow rate	l/h	180	430	620	240	680	910	360	920	960
	l/s	0,05	0,12	0,17	0,07	0,19	0,25	0,10	0,26	0,27
Water pressure drop	kPa	4,3	17,3	31,6	4,4	25,8	42,1	11,9	60,9	65,2
Heating mode, two pipes (3)										
Heating capacity	kW	1,04	2,46	3,55	1,33	3,93	5,27	1,97	5,54	5,79
Water flow rate	l/h	180	430	620	230	680	920	340	960	1010
	l/s	0,05	0,12	0,17	0,06	0,19	0,26	0,09	0,27	0,28
Water pressure drop	kPa	4,1	14,9	27,7	4,3	23	37,9	12,4	70,9	76,6
Water capacity	L	0,9	0,9	0,9	1,2	1,2	1,2	1,5	1,5	1,5
Heating mode, four pipes (4)										
Heating capacity	kW	1,32	2,62	3,48	1,76	3,76	4,52	2,63	5,73	5,92
Water flow rate	l/h	120	230	300	150	330	400	230	500	520
	l/s	0,03	0,06	0,08	0,04	0,09	0,11	0,06	0,14	0,14
Water pressure drop	kPa	2,4	5,8	9	3,5	10,4	14,1	14,1	53,6	56,7
Water capacity	L	0,2	0,2	0,2	0,29	0,29	0,29	0,45	0,45	0,45
Electric heater		1 ph - 50 Hz - 230 V								
Maximum capacity	kW	0,5	1,9	2,23	0,75	2,12	2,25	1	2,25	2,25
Maximum input current	A	11	11	11	11	11	11	11	11	11
Sound levels										
Lw (global): Global sound power level	dB(A)	38	58	67	38	63	69	42	70	72
Lw (inlet + radiated): Sound power level, return + radiated	dB(A)	35	50	59	35	52	59	38	60	61
Lw (outlet): Sound power level, supply air	dB(A)	36	57	66	34	63	69	40	70	72
Lp (global): Sound pressure level (5)	dB(A)	21	41	50	21	46	52	25	53	55
NC value (5)	dB(A)	14	35	46	18	42	48	18	48	50
NR value (5)	dB(A)	16	37	48	20	44	50	20	50	52
Electrical data, motor		1 ph - 50 Hz - 230 V; low energy consumption EC type								
Power input	W	6	46	159	8	67	175	7	148	186
F5 or F6 air filter	mm	240 x 400			240 x 550			315 x 550		
Physical data		1/2" gas			1/2" gas			1/2" gas		
Heating and cooling coils connection diameter	in	1/2" gas			1/2" gas			1/2" gas		
Connection collar diameter	mm	200			200			250		
Height (standard)	mm	270			270			345		
Width (standard)	mm	665			815			815		
Length (standard)	mm	900			1100			1100		
Unit weight (standard)	kg	31			40			50		

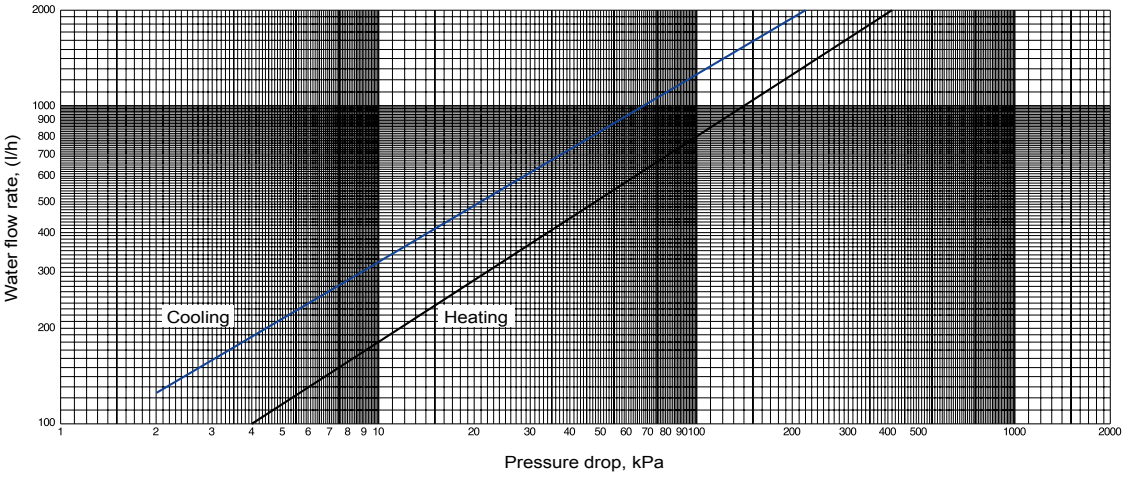
(1) Fan speed: L = Low, M = Medium, H = High
(2) Conditions: Air inlet temperature 27 °C/47% RH, water inlet temperature 7 °C, water temperature difference 5 K.
(3) Conditions: Air inlet temperature 20 °C/% RH, water inlet temperature 45 °C, water temperature difference 5 K.
(4) Conditions: Air inlet temperature 20 °C/% RH, water inlet temperature 65 °C, water temperature difference 10 K.
(5) Based on hypothetical noise attenuation of the room and the system of -17 dB(A).

COIL PRESSURE DROPS

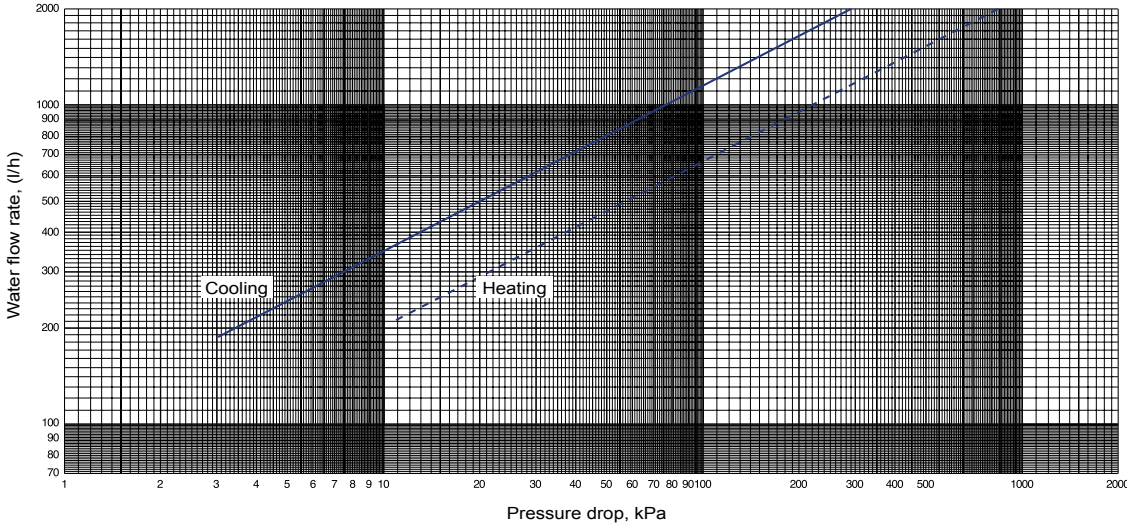
Water pressure drop curves, 42BJ ICM LEC size 1.9



Water pressure drop curves, 42BJ ICM LEC size 2.9



Water pressure drop curves, 42BJ ICM LEC size 4.9

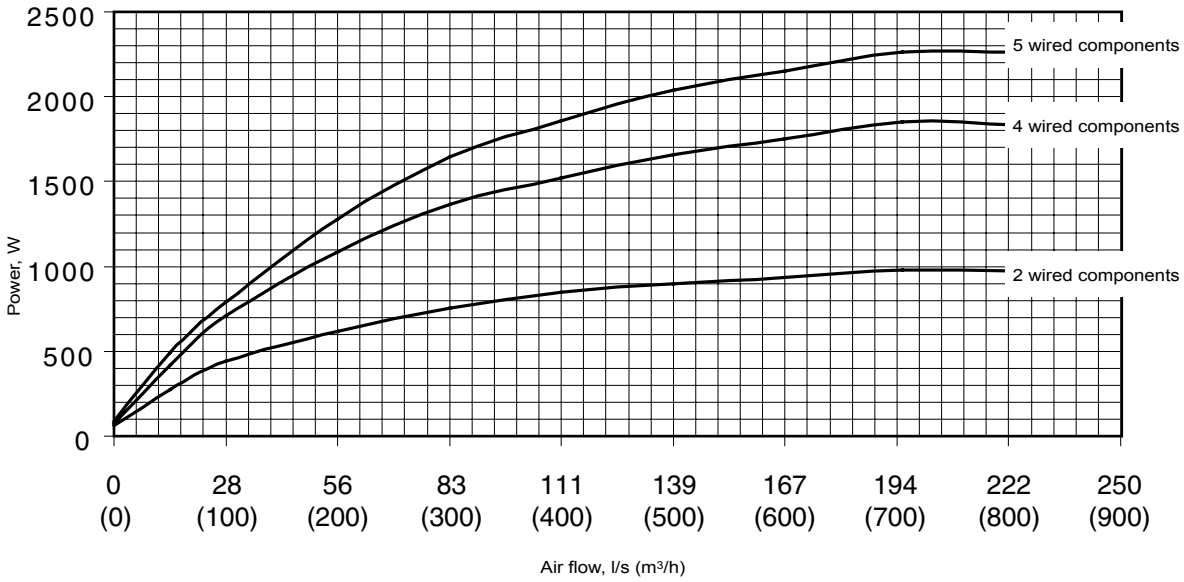


NOTE

Curves established using the following values

- Hot water inlet temperature = 50 °C
- Cold water inlet temperature = 6 °C
- To convert l/h to l/s, divide by 3600.

ELECTRIC HEATER PERFORMANCE



NOTE
Supply voltage = 230 V
Inlet air temperature = 19 °C

3 wirings are available
- Low power "LP": 2 wired components
- Medium power "MP": 4 wired components
- High power "HP": 5 wired components

AIR FLOW DATA

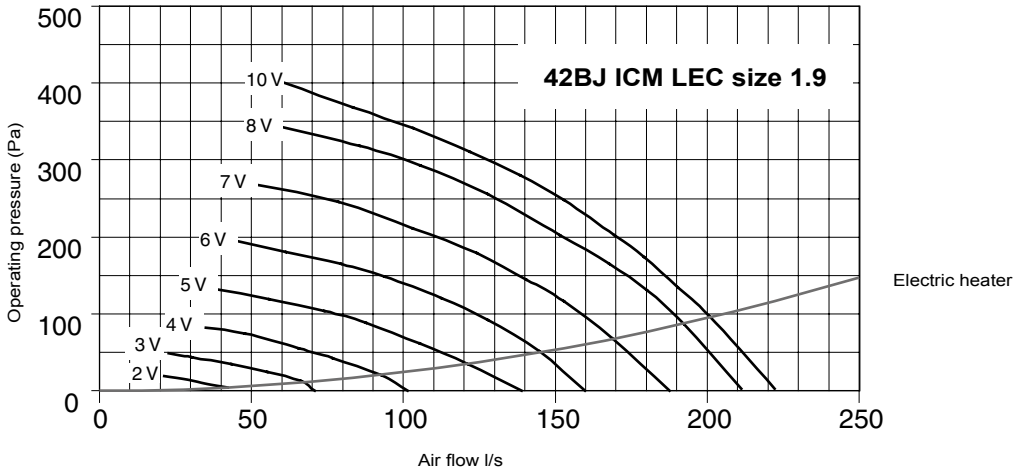
42BJ ICM LEC	Size 1.9					Size 2.9					Size 4.9				
U	I	P	Qv	Qv	ESP	I	P	Qv	Qv	ESP	I	P	Qv	Qv	ESP
(V)	(A)	(W)	(l/s)	(m³/h)	(Pa)	(A)	(W)	(l/s)	(m³/h)	(Pa)	(A)	(W)	(l/s)	(m³/h)	(Pa)
10 V	1,36	175	222	800	2	1,40	181	245	881	4	1,50	191	261	940	0
	1,30	168	201	722	97	1,43	177	236	850	48	1,48	183	234	843	80
	1,28	158	190	685	135	1,40	173	218	785	122	1,46	175	224	806	120
	1,24	151	179	645	174	1,33	171	197	708	188	1,42	167	211	761	170
	1,22	149	169	610	203	1,26	158	178	640	240	1,38	160	198	712	229
	1,18	144	153	550	248	1,19	146	155	557	303	1,32	154	182	656	279
	1,13	135	138	498	280	1,12	142	137	494	332	1,28	146	165	592	313
	1,10	132	122	439	311	1,01	121	114	409	369	1,21	135	140	505	359
	0,91	109	103	372	341	0,92	105	88	315	397	1,15	126	121	434	389
	0,88	106	83	300	369	0,84	101	67	240	408	-	-	-	-	-
	0,81	97	61	220	400	-	-	-	-	-	-	-	-	-	-
8 V	1,29	160	211	760	2	1,22	139	227	817	4	1,28	155	252	906	3
	1,20	147	192	692	87	1,20	141	218	787	52	1,25	150	232	834	47
	1,14	136	180	649	130	1,20	138	203	730	115	1,23	146	223	805	79
	1,05	135	168	604	165	1,17	139	181	653	177	1,21	141	217	782	109
	1,08	129	152	546	203	1,00	122	158	570	244	1,19	138	205	736	155
	0,90	105	128	460	256	1,09	116	140	504	277	1,15	134	188	676	204
	0,93	108	106	380	293	0,92	111	117	423	311	1,09	129	161	580	277
	0,81	92	86	308	319	0,83	98	99	355	335	1,05	124	144	517	306
	0,70	79	59	212	344	0,72	82	65	233	356	0,98	120	124	448	329
7 V	0,92	108	188	675	0	0,89	103	200	721	3	0,96	120	222	800	0
	0,88	101	169	608	67	0,87	96	190	682	49	0,92	115	199	716	53
	0,84	99	153	550	116	0,88	100	173	624	105	0,89	108	170	613	148
	0,78	85	140	506	145	0,86	95	169	609	115	0,86	105	153	551	209
	0,72	84	124	447	179	0,81	89	144	520	180	0,82	100	139	500	236
	0,64	79	103	371	211	0,68	77	108	388	239	0,76	98	126	452	246
	0,58	62	79	283	245	0,61	67	88	316	257	0,69	86	100	360	274
	0,55	64	51	182	269	0,52	58	59	212	269	0,56	69	63	227	298
6 V	0,60	68	160	575	0	0,63	69	173	622	6	0,66	78	190	685	0
	0,58	65	145	522	51	0,62	67	159	571	54	0,61	72	169	607	47
	0,56	62	128	460	92	0,58	65	130	469	122	0,58	69	151	545	99
	0,54	66	113	405	121	0,54	63	111	400	150	0,55	64	139	502	139
	0,47	59	94	338	148	0,47	55	86	310	180	0,53	61	117	421	177
	0,44	48	79	286	165	0,39	45	56	200	200	0,50	56	96	345	199
	0,39	46	61	221	181	-	-	-	-	-	0,46	52	73	262	217
	0,36	43	44	159	195	-	-	-	-	-	0,43	47	58	207	223
5 V	0,46	57	139	500	0	0,42	46	146	525	2	0,43	46	161	581	0
	0,40	48	121	437	35	0,42	47	130	468	46	0,42	44	145	522	33
	0,35	45	105	379	61	0,40	43	114	412	78	0,41	42	127	456	73
	0,32	38	88	316	88	0,35	38	93	334	107	0,41	41	113	406	106
	0,29	36	74	266	104	0,30	31	72	258	123	0,40	40	92	333	129
	0,27	31	56	201	119	0,26	27	59	212	132	0,38	34	75	269	146
	0,23	27	37	132	133	-	-	-	-	-	0,34	27	57	206	155
4 V	0,24	28	101	365	0	0,27	27	119	428	0	0,29	30	131	472	0
	0,23	26	93	333	21	0,26	28	105	377	31	0,26	28	119	428	18
	0,20	23	77	276	42	0,24	25	95	342	45	0,25	26	108	387	41
	0,18	20	66	236	56	0,23	23	83	300	59	0,25	24	90	326	73
	0,17	19	48	172	74	0,20	22	65	233	75	0,24	23	68	245	91
	0,16	17	35	126	82	0,17	18	46	165	85	0,22	22	48	173	102
3 V	0,14	15	71	255	0	0,15	16	87	315	1	0,18	17	101	363	3
	0,13	14	66	238	13	0,14	14	73	262	20	0,16	16	90	323	17
	0,11	13	55	199	24	0,13	13	62	223	30	0,16	14	81	290	34
	0,11	12	43	156	34	0,13	12	51	183	39	0,15	13	62	224	49
	0,10	10	30	109	44	0,11	10	33	120	47	0,13	12	51	183	55
	0,10	9	23	82	48	-	-	-	-	-	0,12	11	39	139	60
2 V	0,08	6	43	153	4	0,09	8	58	209	0	0,10	9	73	262	1
	0,07	6	35	126	10	0,09	7	48	172	8	0,09	8	56	203	16
	0,07	6	29	106	14	0,08	6	37	134	15	0,08	8	46	167	22
	0,06	6	21	75	19	0,08	5	27	96	20	0,07	5	38	135	26
						0,07	6	9	31	26	0,06	4	34	123	27

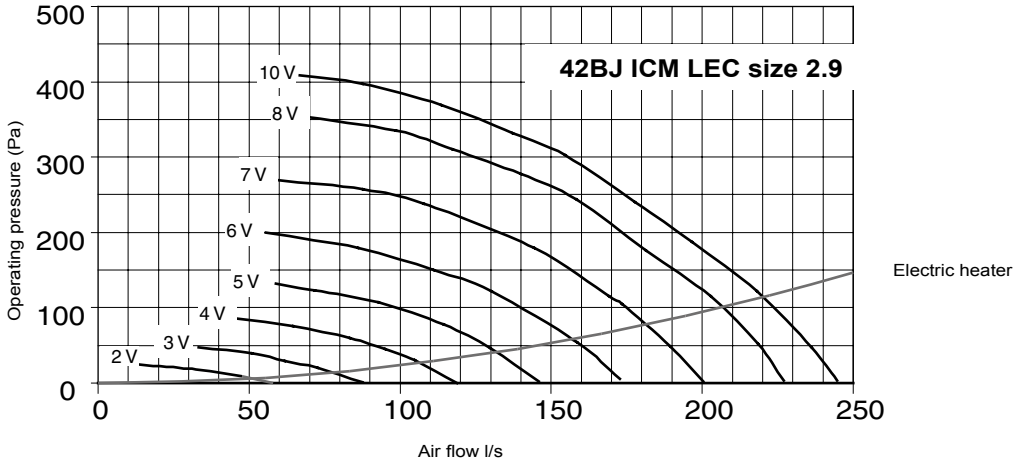
U Effective supply voltage of control fan motor assembly
I Effective current draw
P Fan motor assembly power input, Carrier digital control
Qv Air flow rate
ESP Available external static pressure

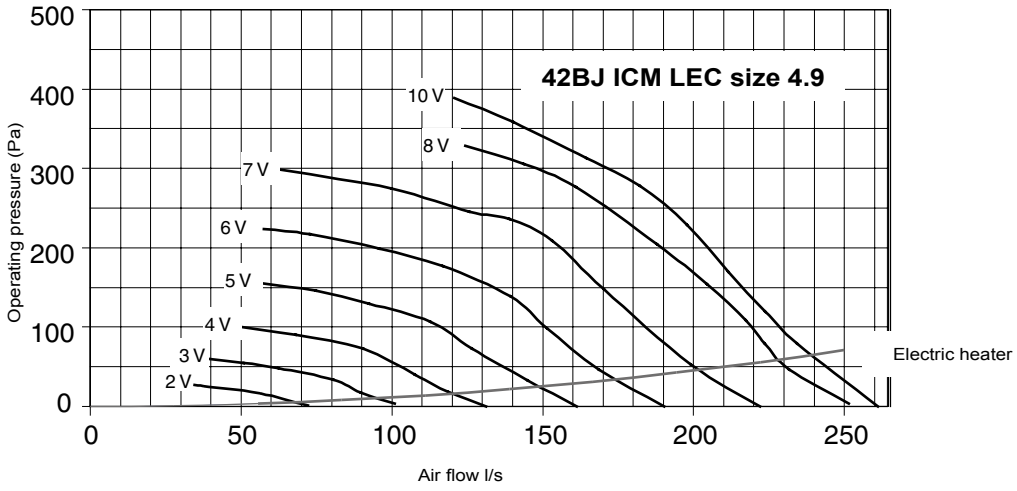
Note: supply voltage = 230 V ± 15%; 1 Ph - 50 Hz

AIRFLOW CURVES

Static pressure available (Pa) according to the air flow (l/s)



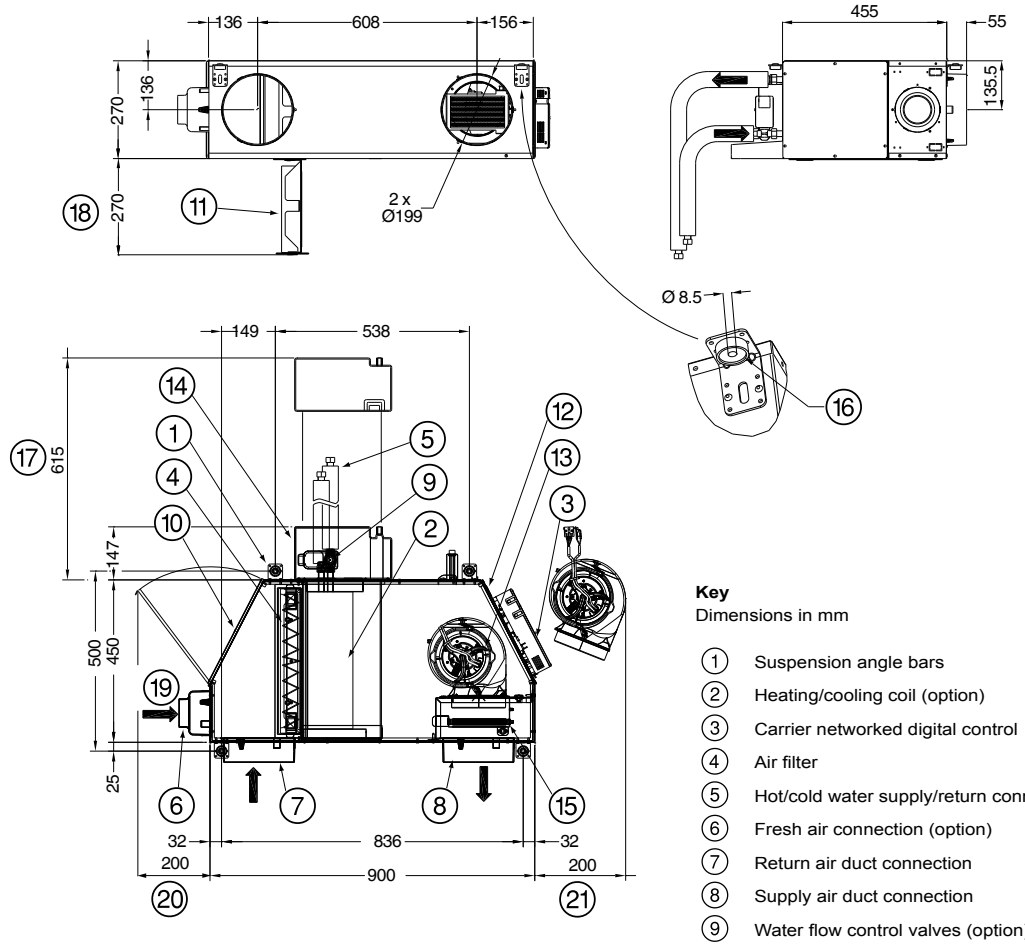




DIMENSIONS AND CLEARANCE

42BJ ICM LEC 1.9

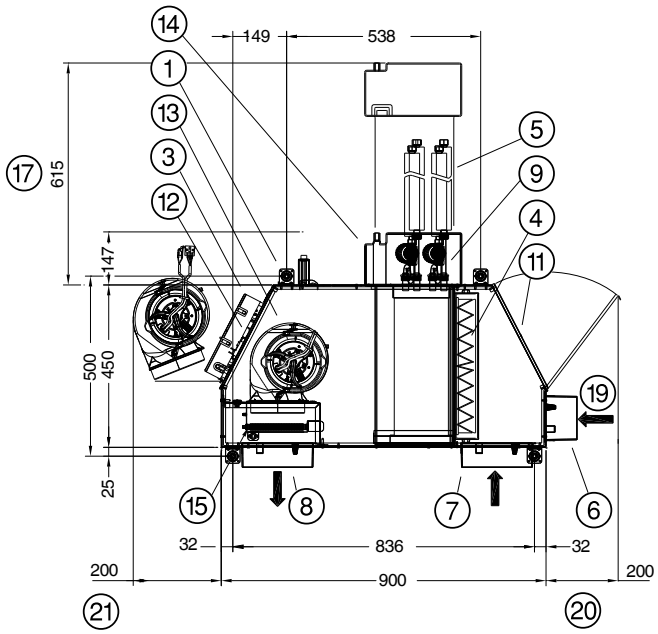
Servo on left



Key
Dimensions in mm

1. Suspension angle bars
2. Heating/cooling coil (option)
3. Carrier networked digital control
4. Air filter
5. Hot/cold water supply/return connection
6. Fresh air connection (option)
7. Return air duct connection
8. Supply air duct connection
9. Water flow control valves (option)
10. Side filter access door
11. Motor access door
12. LEC fan motor assembly
13. Condensate drain pan
14. Electric heater (option)
15. Electric heater
16. Rubber damper
17. Coil-pan assembly free space
18. Free space for filter access via base (option)
19. Fresh air (option)
20. Side filter access free space
21. Fan free space

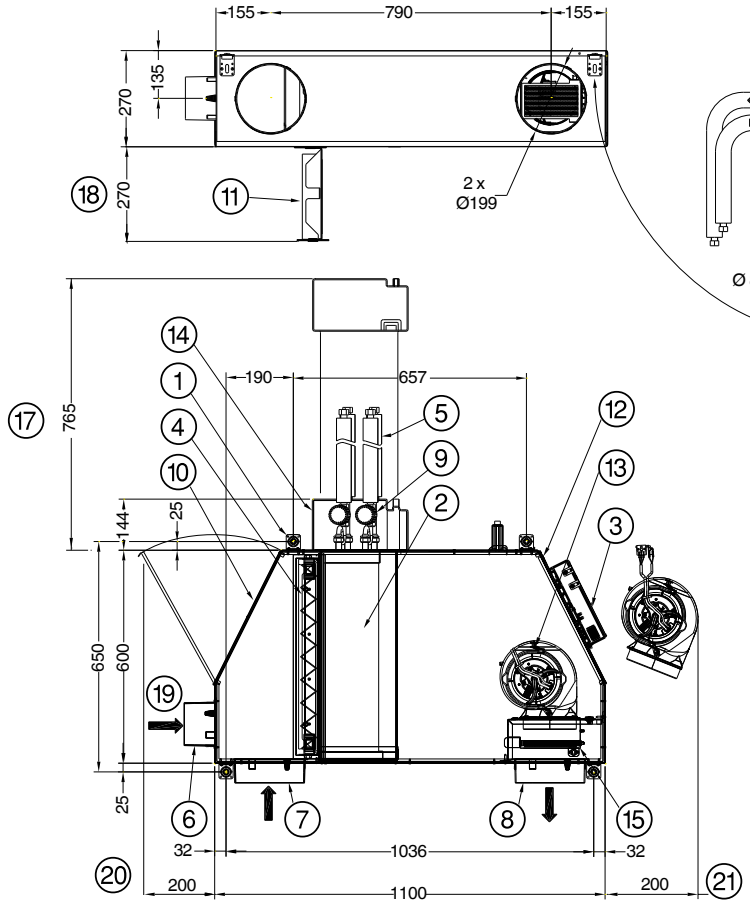
Servo on right



DIMENSIONS AND CLEARANCE

42BJ ICM LEC 2.9

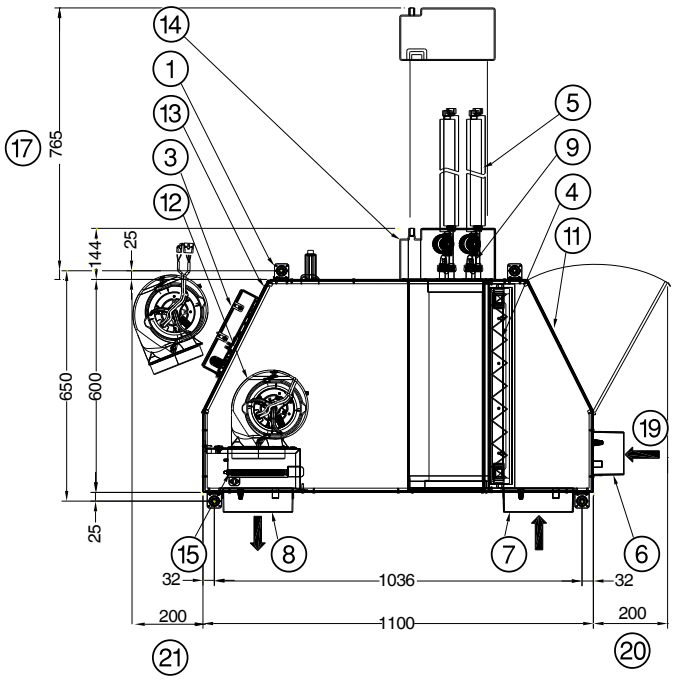
Servo on left



Key
Dimensions in mm

1. Suspension angle bars
2. Heating/cooling coil (option)
3. Carrier networked digital control
4. Air filter
5. Hot/cold water supply/return connection
6. Fresh air connection (option)
7. Return air duct connection
8. Supply air duct connection
9. Water flow control valves (option)
10. Side filter access door
11. Motor access door
12. LEC fan motor assembly
13. Condensate drain pan
14. Electric heater (option)
15. Electric heater
16. Rubber damper
17. Coil-pan assembly free space
18. Free space for filter access via base (option)
19. Fresh air (option)
20. Side filter access free space
21. Fan free space

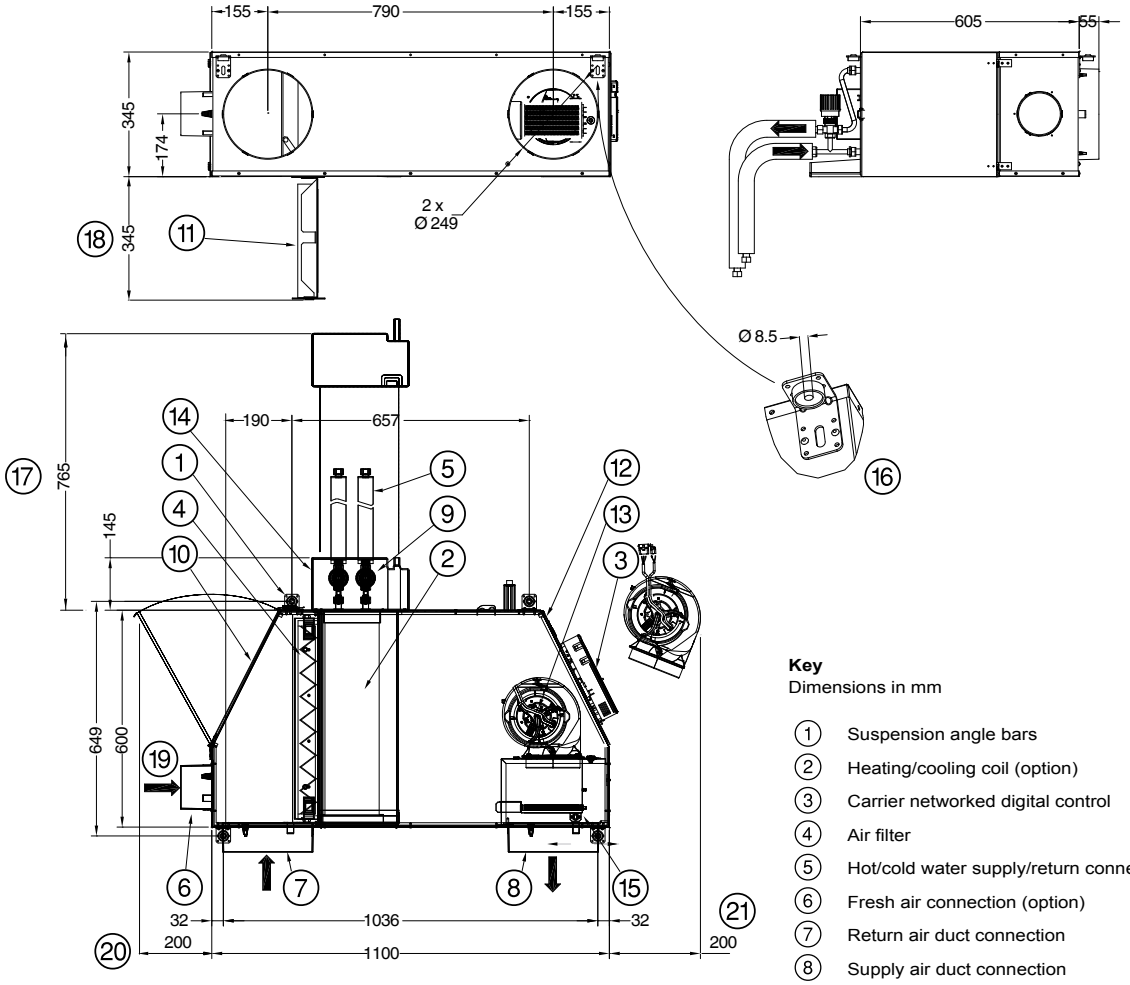
Servo on right



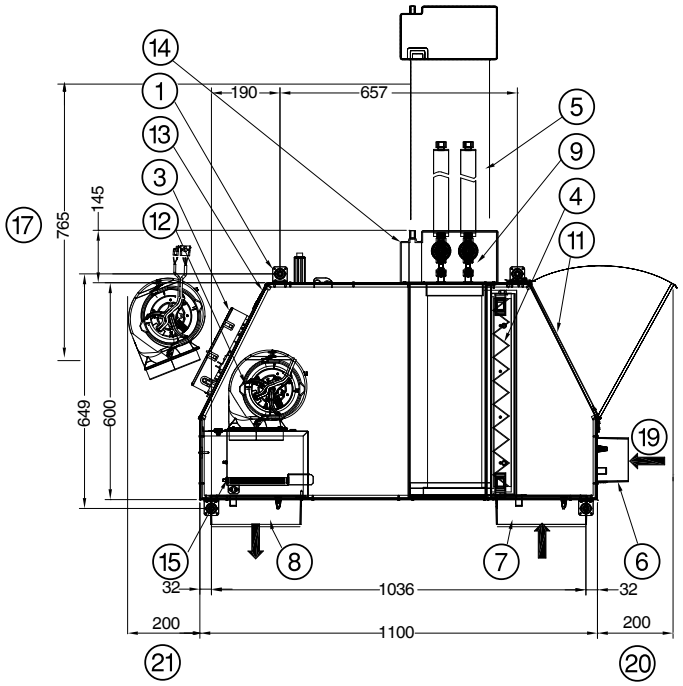
DIMENSIONS AND CLEARANCE

42BJ ICM LEC 4.9

Servo on left



Servo on right



Key
Dimensions in mm

1. Suspension angle bars
2. Heating/cooling coil (option)
3. Carrier networked digital control
4. Air filter
5. Hot/cold water supply/return connection
6. Fresh air connection (option)
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14. Electric heater (option)
15. Electric heater
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17. Coil-pan assembly free space
18. Free space for filter access via base (option)
19. Fresh air (option)
20. Side filter access free space
21. Fan free space

SPECIFICATION GUIDE

- The performance of 42BJ LEC Modules shall comply with the published technical characteristics.

- The 42BJ LEC modules shall be manufactured in galvanised steel sheet metal, with heat and sound insulation, and shall be accessible for maintenance and servicing. The 42BJ shall be fitted with suspension angle bars with rubber vibration-damping mounts.
- The collars designed to retain the return and supply air ducts measure 2 x ø 199 mm for sizes 1.9 and 2.9 and 2 x ø 249 mm for size 4.9
- The collar designed to retain the fresh air duct, with an external diameter of 125 mm, shall be located before the air filter and before the heat exchange coils to enable fresh air handling.

  This shall be connected to the main duct for distribution of primary air via the extendable flexible duct. The fresh air flow shall be between 8.3 and 44.4 l/s (30 and 160 m^3/h).
- The 42BJ LEC modules shall be equipped with a heating/cooling coil for changeover or a one-piece heating/cooling coil and a cooling coil connected to an electric heating coil. Water coils shall be equipped with manual drains.
- The 1- or 5-row cooling and heating coils shall be made from copper tubes and aluminium fins. The maximum water-side operating pressure shall be 1000 kPa (10 bar).
- The condensate pan under the coil and under the valves shall be packaged, in ABS to prevent any leaks.
- The 2- or 3-way motorised valves for variable water flow control will be equipped with hydraulic hoses fitted with 1/2" gas union nut connections to facilitate connections on site and interventions during maintenance operations. The actuators will be thermoelectric.
- The 42BJ LEC modules will be equipped with a disposable high-effciency filter, (F5 or F6 type) with M1 fire resistance rating.
- The filter may be accessed from one of three sides of the unit (base, cover or side).
- The fan shall be a single-acting centrifugal type with a single or double inlet. The available static pressure must be sufficient to enable units to be installed outside the air conditioned space thereby facilitating maintenance operations.
- The fan's direct-drive motor shall be an "Low Energy Consumption" (LEC) type.

  This direct-drive motor will be electronically commutated (commonly called an "EC motor"), controlled by a 0-10 V signal enabling it to operate over a broad range of rotation speeds by varying the native speed, accurately, easily and quietly.
- The electrical connections made on the 42BJ LEC will be quick connections to facilitate maintenance operations.
- The Carrier networked digital control shall use the CCN (Carrier Comfort Network) communication protocol.

  This control shall have the following main functions:
  - Control the ICM ventilation speed within set minimum and maximum flow rate values for cooling and/or heating
  - Adjust the water flow rate using 2- or 3-way on/off valves, depending on the internal and external loads, to ensure a constant room temperature in the air-conditioned room
  - Adjust the power of the PTC electrical heater in on/off mode
  - Be controlled by a micro-terminal with digital display or by a wall thermostat.
- The power supply of the controller shall be 230 V AC ± 15%, 1 ph, 50 Hz, with no need to add a transformer. The electrical heater shall be controlled directly via the Carrier digital controller with no need to add a power triac.

Quality and Environment
Management Systems
Approval

No. 14290-20, 03.2018. Cancels order No.: Supersedes: 14290-20, 07.2016.
The manufacturer reserves the right to make any changes, without notice.
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